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10/699,022	10/31/2003	Guenter Weinberger	29083/44157	2140

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EXAMINER	
WANG, ALBERT C	

ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/699,022	WEINBERGER ET AL.	
	Examiner	Art Unit	
	Albert Wang	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☒ Claim(s) *1* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is responsive to the request for reconsideration filed 27 September 2006. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 1 is objected to because of the following informalities: "based at least in part on s" is interpreted as "based at least in part on a". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naito et al., U.S. Patent No. 6,735,455 ("Naito"), in view of Gschwind et al., U.S. Patent No. 6,948,082 ("Gschwind"), and Browning et al., U.S. Patent No. 6,415,388 ("Browning").

As per claim 1, Naito teaches a method for conserving power by controlling program execution in a convergence device comprising a power source and at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions (fig. 3, comprising battery 1 and CPU 11 to perform operations associated with radio communication and data processing), the processor being operative to execute critical programs and noncritical programs, the method comprising the steps of:

based at least in part on a power indicator representative of a characteristic of the power source, restricting execution of a given program associated with the data communication functions, such that an amount of power source capacity utilizable for the voice call communication functions is increased (col. 2, lines 54-65; col. 4, lines 42-59, priority given to radio communication function; col. 6, lines 48-53, programs associated with function processing units; col. 7, lines 1-25, restrict function processing to reduce power consumption based on remaining battery charge; col. 7, lines 45-63, remaining battery charge available for emergency telephone call).

While Naito teaches various means to restrict a given program to reduce power consumption when the remaining battery capacity goes below a given level, Naito does not expressly teach replacing execution of the given program with execution of an alternate capacity program performing substantially the same function as the given program but consuming less power. Naito teaches one procedure for restricting a given program is by changing frequency (col. 7, lines 1-25). As an alternative embodiment to changing frequency, Gschwind teaches replacing an algorithm with one that consumes less power (col. 5, lines 33-45, substituting with algorithm of degraded complexity to save power; col. 5, line 66 – col. 6, line 5; col. 8, lines 45-57). Though Gschwind teaches using alternative embodiments to reduce power consumption for the purpose of temperature management, it is well known in the art that power saving mechanisms for controlling processor temperature are inherently applicable to conserving battery capacity. Browning teaches decreasing program complexity is applicable to both temperature management and power conservation (col. 4, lines 9-29; col. 7, lines 9-23). Therefore in view of Gschwind and Browning, it would have been obvious to one of

ordinary skill in the art that Naito's given program may replaced with lower performance version, in order to save power when battery capacity below a given threshold.

Since Naito teaches restricting execution when battery capacity is below a given threshold, the alternate capacity program would be associated with a lower battery capacity. Furthermore, calling an alternate program inherently involves use of an identifier associated with that alternate function.

As per claim 2, Naito teaches the power source comprises a battery (col. 6, lines 54-60).

As per claim 3, Naito teaches the power indicator is representative of a remaining capacity of the battery (col. 7, lines 1-25).

As per claim 4, Naito teaches if the power indicator is below a first threshold, restricting execution of the given program (col. 7, lines 1-25).

As per claim 5, Gschwind teaches execution of a given program is replaced with execution of an alternate capacity program having higher power consumption when a threshold is exceeded (col. 8, lines 15-36). This changing to a higher power consumption mode may be adapted for execution based on power source capacity.

As per claim 6, Naito teaches the voice call communication functions comprise one or more functions associated with cellular voice call communications (col. 7, lines 45-63).

As per claims 7-10, Gschwind teaches multimedia processing at one or more of a specified data rate, a specified refresh rate and a specified display resolution (col. 5, lines 33-66).

As per claim 11, Naito teaches the critical programs comprise programs utilized to implement at least one of an operating system running on the processor, a graphical user interface of the convergence device, and one or more of the voice call communication functions (col. 7, lines 45-63).

As per claim 12, Naito teaches a threshold for a power source capacity and therefore teaches at least two categories including a category at a first capacity and a category at a second capacity, the first capacity being a lower capacity than the second capacity (col. 7, lines 1-25).

As per claim 13, Gschwind teaches each of at least a subset of the plurality of noncritical programs may be in one of a number of states, including at least an executing state, a pending state and a sleeping state (col. 5, lines 33-66).

As per claim 14, Naito teaches if the power indicator is below a second threshold that is lower than the first threshold, the given noncritical program and the alternate noncritical program are set to a sleeping status (col. 7, lines 26-34).

As per claim 15, waking up based on power source capacity is well known in the art.

As per claim 16, Naito teaches the second threshold is representative of a minimum acceptable capacity for continuation of one or more of the voice call communication functions (col. 7, lines 45-63).

As per claim 17, Gschwind teaches the processor is operative to store a list of the noncritical programs with associated capacities for one or more of the noncritical programs (col. 48-65).

As per claim 18, Gschwind teaches multithreaded processing (col. 9, lines 31-46).

As per claim 19, Naito teaches a convergence device comprising:

a power source (fig. 3, battery 1); and

at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data communication functions, the processor being operative to execute critical and noncritical functions (fig. 3, CPU 11 to perform operations associated with radio communication and data processing; col. 7, lines 1-25 & line 64 – col. 8, line 6);

wherein based at least in part on a power indicator representative of a characteristic of the power source, restricting execution of a given program associated with the data communication functions, such that an amount of power source capacity utilizable for the voice call communication functions is increased (col. 2, lines 54-65; col. 4, lines 42-59, priority given to radio communication function; col. 6, lines 48-53, programs associated with function processing units; col. 7, lines 1-25, restrict function processing to reduce power consumption based on remaining battery charge; col. 7, lines 45-63, remaining battery charge available for emergency telephone call).

While Naito teaches various means to restrict a given program to reduce power consumption when the remaining battery capacity goes below a given level, Naito does not expressly teach replacing execution of the given program with execution of an alternate capacity program performing substantially the same function as the given program but consuming less power. Naito teaches one procedure for restricting a given program is by changing frequency (col. 7, lines 1-25). As an alternative embodiment to changing frequency, Gschwind teaches replacing an algorithm with one that consumes

less power (col. 5, lines 33-45, substituting with algorithm of degraded complexity to save power; col. 5, line 66 – col. 6, line 5; col. 8, lines 45-57). Though Gschwind teaches using alternative embodiments to reduce power consumption for the purpose of temperature management, it is well known in the art that power saving mechanisms for controlling processor temperature are inherently applicable to conserving battery capacity. Browning teaches decreasing program complexity is applicable to both temperature management and power conservation (col. 4, lines 9-29; col. 7, lines 9-23). Therefore in view of Gschwind and Browning, it would have been obvious to one of ordinary skill in the art that Naito's given program may replaced with lower performance version, in order to save power when battery capacity below a given threshold.

Since Naito teaches restricting execution when battery capacity is below a given threshold, the alternate capacity program would be associated with a lower battery capacity. Furthermore, calling an alternate program inherently involves use of an identifier associated with that alternate function.

As per claim 20, since Naito/Gschwind teaches the method of claim 1 and the convergence device of claim 19, Naito/Gschwind teaches the claimed article of manufacture.

As per claim 21, Naito teaches a method for conserving power by controlling program execution in a convergence device comprising a power source and at least one processor configured to perform processing operations associated with voice call communication functions and to perform processing operations associated with data

communication functions (fig. 3, comprising battery 1 and CPU 11 to perform operations associated with radio communication and data processing), the processor being operative to execute critical programs and noncritical programs, the method comprising the steps of:

based at least in part on a power indicator representative of a characteristic of the power source, setting at least a subset of the plurality of noncritical programs in one of an executing state, a pending state and a sleeping state and restricting execution of a given program associated with the data communication functions, such that an amount of power source capacity utilizable for the voice call communication functions is increased (col. 2, lines 54-65; col. 4, lines 42-59, priority given to radio communication function; col. 6, lines 48-53, programs associated with function processing units; col. 7, lines 1-25, suspend noncritical programs and restrict function processing to reduce power consumption based on remaining battery charge; col. 7, lines 45-63, remaining battery charge available for emergency telephone call).

While Naito teaches various means to restrict a given program to reduce power consumption when the remaining battery capacity goes below a given level, Naito does not expressly teach replacing execution of the given program with execution of an alternate capacity program performing substantially the same function as the given program but consuming less power. Naito teaches one procedure for restricting a given program is by changing frequency (col. 7, lines 1-25). As an alternative embodiment to changing frequency, Gschwind teaches replacing an algorithm with one that consumes less power (col. 5, lines 33-45, substituting with algorithm of degraded complexity to save power; col. 5, line 66 – col. 6, line 5; col. 8, lines 45-57). Gschwind also teaches

placing a program in a sleeping state (claims 10 & 12). Though Gschwind teaches using alternative embodiments to reduce power consumption for the purpose of temperature management, it is well known in the art that power saving mechanisms for controlling processor temperature are inherently applicable to conserving battery capacity. Browning teaches decreasing program complexity is applicable to both temperature management and power conservation (col. 4, lines 9-29; col. 7, lines 9-23). Therefore in view of Gschwind and Browning, it would have been obvious to one of ordinary skill in the art that Naito's given program may replaced with lower performance version, in order to save power when battery capacity below a given threshold.

Since Naito teaches restricting execution when battery capacity is below a given threshold, the alternate capacity program would be associated with a lower battery capacity. Furthermore, calling an alternate program inherently involves use of an identifier associated with that alternate function.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Wang whose telephone number is 571-272-3669. The examiner can normally be reached on M-F (9:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AW

CHUN CAO
PRIMARY EXAMINER